

APPLICATION

FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT WE, **Jay Ross**, a citizen of the United States, and
Lance Hendrickson, a citizen of the United States, have invented a new and useful
boatlift buoyancy system of which the following is a specification:

1
2
3 **Boatlift Buoyancy System**
4
5

6 **CROSS REFERENCE TO RELATED APPLICATIONS**

7 Not applicable to this application.
8
9

10 **STATEMENT REGARDING FEDERALLY**
11 **SPONSORED RESEARCH OR DEVELOPMENT**

12 Not applicable to this application.
13
14

15 **BACKGROUND OF THE INVENTION**
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18

19 **Field of the Invention**
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21 The present invention relates generally to boatlifts and more specifically it
22 relates to a boatlift buoyancy system for assisting in maneuvering a boatlift while in
23 the water by adding buoyancy to the boatlift.
24
25

26 **Description of the Related Art**
27

28 Boatlifts have been in use for years for supporting boats during non-usage.
29 Figure 1 of the drawings illustrates an exemplary boatlift that the present invention

1 may be utilized upon. Boatlifts are typically comprised of a tubular metal structure
2 (e.g. aluminum, steel, etc.) and are relatively heavy. Boatlifts can exceed 600 pounds
3 and are very difficult to maneuver even when positioned in deep water.
4

5 While these devices may be suitable for the particular purpose to which they
6 address, they are not as suitable for assisting in maneuvering a boatlift while in the
7 water by adding buoyancy to the boatlift. Conventional boatlifts are difficult to
8 maneuver because of their weight, size and awkwardness.
9

10 In these respects, the boatlift buoyancy system according to the present
11 invention substantially departs from the conventional concepts and designs of the prior
12 art, and in so doing provides an apparatus primarily developed for the purpose of
13 assisting in maneuvering a boatlift while in the water by adding buoyancy to the
14 boatlift.
15
16

1

2 **BRIEF SUMMARY OF THE INVENTION**

3

4 In view of the foregoing disadvantages inherent in the known types of boatlifts
5 now present in the prior art, the present invention provides a new boatlift buoyancy
6 system construction wherein the same can be utilized for assisting in maneuvering a
7 boatlift while in the water by adding buoyancy to the boatlift.

8

9 The general purpose of the present invention, which will be described
10 subsequently in greater detail, is to provide a new boatlift buoyancy system that has
11 many of the advantages of the boatlifts mentioned heretofore and many novel features
12 that result in a new boatlift buoyancy system which is not anticipated, rendered
13 obvious, suggested, or even implied by any of the prior art boatlifts, either alone or in
14 any combination thereof.

15

16 To attain this, the present invention generally comprises a first tube and a
17 second tube attachable to the horizontal support beams of a boatlift that are capable of
18 receiving of volume of air and/or water. A first hose and a second hose are fluidly
19 connected to the first tube and second tube respectively for delivering pressurized air
20 when buoyancy is desired for the boatlift. The first tube and the second tube also have
21 a first aperture and a second aperture respectively within lower portions thereof for
22 allowing for the draining of water when pressurized air is input into the tubes.

23

24 There has thus been outlined, rather broadly, the more important features of the
25 invention in order that the detailed description thereof may be better understood, and
26 in order that the present contribution to the art may be better appreciated. There are
27 additional features of the invention that will be described hereinafter and that will form
28 the subject matter of the claims appended hereto.

29

1 In this respect, before explaining at least one embodiment of the invention in
2 detail, it is to be understood that the invention is not limited in its application to the
3 details of construction and to the arrangements of the components set forth in the
4 following description or illustrated in the drawings. The invention is capable of other
5 embodiments and of being practiced and carried out in various ways. Also, it is to be
6 understood that the phraseology and terminology employed herein are for the purpose
7 of the description and should not be regarded as limiting.

8
9 A primary object of the present invention is to provide a boatlift buoyancy
10 system that will overcome the shortcomings of the prior art devices.

11
12 A second object is to provide a boatlift buoyancy system for assisting in
13 maneuvering a boatlift while in the water by adding buoyancy to the boatlift.

14
15 Another object is to provide a boatlift buoyancy system that may be attached to
16 various types of boatlifts.

17
18 An additional object is to provide a boatlift buoyancy system that significantly
19 decreases the effective weight of a boatlift within water.

20
21 A further object is to provide a boatlift buoyancy system that is easy to utilize.

22
23 Other objects and advantages of the present invention will become obvious to the
24 reader and it is intended that these objects and advantages are within the scope of the
25 present invention.

26
27 To the accomplishment of the above and related objects, this invention may be
28 embodied in the form illustrated in the accompanying drawings, attention being called
29 to the fact, however, that the drawings are illustrative only, and that changes may be

- 1 made in the specific construction illustrated and described within the scope of the
- 2 appended claims.

1
2 **BRIEF DESCRIPTION OF THE DRAWINGS**
3

4 Various other objects, features and attendant advantages of the present
5 invention will become fully appreciated as the same becomes better understood when
6 considered in conjunction with the accompanying drawings, in which like reference
7 characters designate the same or similar parts throughout the several views, and
8 wherein:
9

10 FIG. 1 is an upper perspective view of the present invention attached to the
11 horizontal support beams of the boatlift.
12

13 FIG. 2 is an exploded upper perspective view of the present invention with
14 respect to the horizontal support beams of the boatlift.
15

16 FIG. 3a is a side view of the present invention attached to a boatlift wherein the
17 tubes are substantially filled with water thereby having limited buoyancy.
18

19 FIG. 3b is a side view of the present invention attached to a boatlift wherein the
20 tubes are substantially filled with air thereby having increased buoyancy.
21

22 FIG. 4 is an upper perspective view of a first embodiment wherein a connecting
23 hose is utilized to fluidly connect the first hose and the second hose.
24

25 FIG. 5 is a lower perspective view of the present invention illustrating the first
26 aperture and the second aperture with the lower portion of the tubes.
27

1 FIG. 6 is an upper perspective view of a second embodiment of the present
2 invention wherein the first hose and the second hose have a first nozzle and a second
3 nozzle respectively for receiving pressurized air.

4
5 FIG. 7 is an upper perspective of a third embodiment of the present invention
6 wherein the tubes are the support beams.

7
8 FIG. 8 is a magnified upper perspective view of the valve unit.
9

DETAILED DESCRIPTION OF THE INVENTION

A. Overview

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1 through 8 illustrate a boatlift buoyancy system 10, which comprises a first tube 20 and a second tube 30 attachable to the horizontal support beams 14 of a boatlift 12 that are capable of receiving of volume of air and/or water. A first hose 56 and a second hose 58 are fluidly connected to the first tube 20 and second tube 30 respectively for delivering pressurized air when buoyancy is desired for the boatlift 12. The first tube 20 and the second tube 30 also have a first aperture 22 and a second aperture 32 respectively within lower portions thereof for allowing for the draining of water when pressurized air is input into the 20, 30.

B. Buoyancy Tubes

The first tube 20 and the second tube 30 each have a tubular structure having an interior cavity. The first tube 20 and the second tube 30 are preferably removably attachable to a boatlift 12 as shown in Figures 1 through 3b of the drawings. The 20, 30 may be comprised of various materials such as but not limited to plastic, composite, fiberglass, aluminum and the like.

The 20, 30 are preferably an elongate horizontal structure as shown in Figures 1 through 7 of the drawings, however the 20, 30 may be comprised of a various other structures. The 20, 30 are also sealed within the upper portion thereof to prevent the escape of pressurized air. The 20, 30 may have various cross sectional shapes, sizes and lengths as can be appreciated.

1 The **20, 30** are capable of receiving of predefined volume of air and/or water.
2 The **20, 30** preferably have a combined interior volume that allows for a substantial
3 off-setting of the dry-weight of the boatlift **12**. It is desirable that the water
4 displacement not exceed the dry-weight of the boatlift **12** to avoid over-flotation of the
5 boatlift **12** which would be difficult to maneuver. It is desirable to size the **20, 30** so
6 that when the **20, 30** are completely filled with pressurized air they off-set
7 approximately 40 – 90% of the dry-weight of the boatlift **12**.

8
9 The **20, 30** are preferably removably attached to the horizontal support beams
10 **14** of a boatlift **12** by attachment brackets **40** as shown in Figures 1 and 2 of the
11 drawings. The **20, 30** are preferably orientated substantially horizontal when attached
12 to a boatlift **12** as shown in Figure 1 of the drawings. It can be appreciated that the **20,**
13 **30** may be permanently attached to the boatlift **12** also. Also, the **20, 30** may be
14 comprised of part of the frame of the boatlift **12** (e.g. the horizontal support beams **14**)
15 as shown in Figure 7 of the drawings.

16
17 As best shown in Figures 4 through 7 of the drawings, the first tube **20** and the
18 second tube **30** have a first aperture **22** and a second aperture **32** respectively within
19 lower portions thereof. The first aperture **22** and the second aperture **32** allow for
20 draining of water when pressurized air is input into the **20, 30** and for allowing water
21 to enter the **20, 30** when pressurized air is allowed to escape from the **20, 30**.

22
23 A first screen **24** and a second screen **34** are preferably positioned about the
24 first aperture **22** and the second aperture **32** for keeping debris from entering within the
25 **20, 30**. The first screen **24** and the second screen **34** are preferably comprised of a
26 wire mesh material, however various other materials may be utilized.

1 **C. *Air Hoses***

2 A first hose **56** and a second hose **58** are fluidly connected to the first tube **20**
3 and the second tube **30** respectively for providing pressurized air for increasing
4 buoyancy and for releasing pressurized air for reducing buoyancy. The first hose **56**
5 and the second hose **58** may be comprised of any tubular structure capable of
6 transferring slightly pressurized air.

7
8 As shown in Figure 6 of the drawings, the first hose **56** and the second hose **58**
9 may have a first nozzle **57** and a second nozzle **59** respectively for allowing input of
10 pressurized air by a conventional air supply (e.g. air compressor, air tank, etc.). The
11 first nozzle **57** and the second nozzle **59** preferably have a valve structure such as an
12 automatic valve structure that closes when the air supply is not fluidly connected to
13 prevent the escape of pressurized air. A manual valve structure may also be utilized
14 within the first nozzle **57** and the second nozzle **59** to control the air within the **20, 30**.

15
16 Alternatively, a connecting hose **60** having a connecting nozzle **62** may be
17 fluidly connected to the first hose **56** and the second hose **58** as shown in Figures 4 and
18 5 of the drawings. As with the first nozzle **57** and the second nozzle **59**, the
19 connecting nozzle **62** preferably has an automatic or manual valve structure.

20
21 In addition, a valve unit **50** may be fluidly connected to the first hose **56** and the
22 second hose **58** as shown in Figures 1, 2, 7 and 8 of the drawings. The valve unit **50**
23 controls the air flow to the **20, 30** and the air flow from the **20, 30**. The valve unit **50**
24 preferably includes a fill nozzle **54** for inputting pressurized air and a release valve **52**
25 for releasing pressurized air from the **20, 30** as shown in Figure 8 of the drawings. The
26 valve unit **50** preferably includes a plurality of manual valves for allowing control of
27 the flow of air through the first hose **56** and the second hose **58** as shown in Figure 8 of
28 the drawings.

1 **D. *Attachment Brackets***

2 As stated previously, the first tube **20** and the second tube **30** are removably
3 attachable to a boat lift by a plurality of attachment brackets **40**. Various types of
4 attachment brackets **40** may be utilized to attach the **20, 30** to the boatlift **12** other than
5 illustrated in the drawings.

6
7 However, the attachment brackets **40** are preferably comprised of a U-member
8 with threaded distal ends, a plate with a plurality of apertures for receiving the U-
9 member, and a plurality of fastener nuts threadably attachable to the threaded distal
10 ends as best illustrated in Figure 2 of the drawings. The U-member is secured about
11 the **20, 30** with the plate positioned on the interior side of the support beams **14** of the
12 boatlift **12**.

13
14 **E. *Operation of Invention***

15 If the user desires to reduce the effective weight of the boatlift **12** for increasing
16 maneuverability, the user inputs pressurized air into the first tube **20** and the second
17 tube **30** thereby expelling any water within the **20, 30** through the apertures and
18 increasing the buoyancy of the **20, 30** as shown in Figure 3b of the drawings. The user
19 is then able to easily maneuver the boatlift **12** within the water without having to exert
20 a significant amount of force.

21
22 When the boatlift **12** is in the desired location, the user then releases the
23 pressurized air from the first tube **20** and the second tube **30** thereby allowing water to
24 enter the **20, 30** through the apertures and reducing the buoyancy of the **20, 30**. The
25 user then may disconnect the pressurized air supply from the invention and utilize the
26 boatlift **12**.

1 As to a further discussion of the manner of usage and operation of the present
2 invention, the same should be apparent from the above description. Accordingly, no
3 further discussion relating to the manner of usage and operation will be provided.
4

5 With respect to the above description then, it is to be realized that the optimum
6 dimensional relationships for the parts of the invention, to include variations in size,
7 materials, shape, form, function and manner of operation, assembly and use, are
8 deemed to be within the expertise of those skilled in the art, and all equivalent
9 structural variations and relationships to those illustrated in the drawings and
10 described in the specification are intended to be encompassed by the present invention.
11

12 Therefore, the foregoing is considered as illustrative only of the principles of
13 the invention. Further, since numerous modifications and changes will readily occur to
14 those skilled in the art, it is not desired to limit the invention to the exact construction
15 and operation shown and described, and accordingly, all suitable modifications and
16 equivalents may be resorted to, falling within the scope of the invention.